R.F Exposure/Safety Calculation for 1000-CEU-PCS4E-HLN

The E.U.T. is rack or wall mounted. The typical distance between the E.U.T. and the general population is >50 cm.

Calculation of Maximum Permissible Exposure (MPE)
Based on Section 1.1307(b)(1) Requirements

(a) FCC limit at 889.0 MHz is: $f/1500 = 0.593 \frac{mW}{cm^2}$

FCC limit at 1960 MHz is: $1 \frac{mW}{cm^2}$

Using table 1 of Section 1.1307(b)(1) limit for general population/uncontrolled exposures, the above level is an average over 30 minutes.

(b) The power density produced by the E.U.T. is

$$S = \frac{P_t G_t}{4\pi R^2}$$

P_t- Transmitted Peak Power (worst case)
G_T- Antenna Gain, 12.5 dBi = 17.8 numeric
R- Distance from Transmitter 50cm

(c) Peak power density at worst case continuous transmission:

Band	Modulation	Pt (mW)	Antenna type	G_T (dBi)	G_T numeric	R (cm)	S_{AV} (mW/cm^2)	Spec (mW/cm^2)
CELL	QPSK	288	External	12.5	17.8	50	0.163178	0.593
	16QAM	298	External	12.5	17.8	50	0.168844	0.593
	64 QAM	301	External	12.5	17.8	50	0.170544	0.593
PCS	QPSK	780	External	12.5	17.8	50	0.441941	1
	16QAM	791	External	12.5	17.8	50	0.448174	1
	64QAM	796	External	12.5	17.8	50	0.451007	1

(d) This is below the FCC limit.